Samsung Cloud Displays

Seamless and powerful lineups to deploy Virtual Desktop Infrastructure more easily for advanced mobility, manageability, security and business efficiency

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Improved security, agility and efficiency

Streamline the work environment with new thin-client and zero-client displays

Today's organizations seek new ways to control costs, increase security and simplify IT infrastructure maintenance. Providing employees with an accessible environment in which they can access programs, data and settings can be an expensive and complex task.

With Samsung Cloud Displays, companies can:

- Increase employee mobility and efficiency through a VDI infrastructure with advanced connectivity.
- Improve productivity by uncluttering the workspace and incorporating an ergonomic workstation design.
- Optimize IT strategies to protect company data and systems from security threats.
- Streamline the IT environment with a VDI to reduce costs, keep systems up-to-date, improve management and meet regulatory compliance requirements.

Samsung was one of the early frontiers in integrating thin-client and zero-client technology into an All-in-One Cloud Display. Built to professional-grade standards for quality, ergonomics and durability, Samsung Cloud Displays provide a VDI that improves efficiency and productivity. Thin- and zero-client displays free up workspace by reducing cable clutter and eliminating the need for desktop PCs.

In addition to All-in-One Cloud Display, Samsung offers seamless and powerful lineups to deploy Virtual Desktop Infrastructure more easily:

	All-in-One	Box type	Stand type
Type	Eliminate the need for a separate PC	The easiest and most convenient way to deploy VDI	Transform current Monitor to All-in-One Cloud Display
Thin-client	TC241W, TC191W	TX-WN	TB-WH
Zero-client	NC241, NC221, NC191	NX-N2	NB-NH

Industry trends

The current demand for more efficient, secure and cost-effective IT equipment is driven by the following industry trends:

- The expansion of computing ecosystems that increased consumer device usage within IT and proliferated the number of devices connected to Internet
- The need for modern workers to connect to informtion, application, services and other individuals to collabrate efficiently
- The wide acceptance of cloud computing technology as a hub for information, data and services
- The increase of internal and external security and privacy threats to IT infrastructures caused by the expanded use of consumer devices and ubiquitous connectivity
- The requirements of regulatory compliance and reinforcement to protect information, software and intellectual property

Businesses are turning to VDI technology to improve efficiency, protect data and infrastructures and reduce costs.[1]
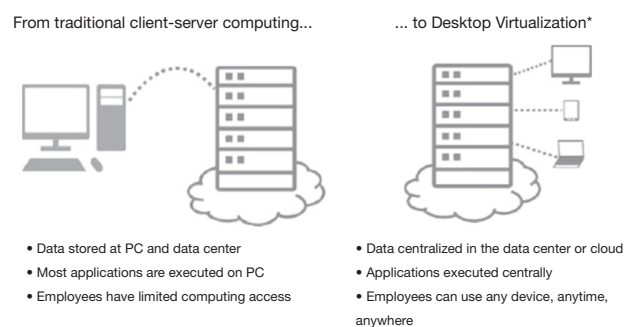
From traditional client-server computing...   ... to Desktop Virtualization*

- Data stored at PC and data center
- Most applications are executed on PC
- Employees have limited computing access

- Data centralized in the data center or cloud
- Applications executed centrally
- Employees can use any device, anytime, anywhere

Figure 1. Comparison of traditional desktop computing and VDI computing

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Improve organizational flexibility with enhanced connectivity

Once VDI is deployed, additional benefit of greater connectivity to a wide range of employee's mobile devices is provided to support Bring Your Own Device (BYOD) initiatives. Ubiquitous connectivity and company policy help employees access their data and applications securely from anywhere; whether from their laptop at a customer site; on a shared PC at the branch office; or a non-company PC at home or on the road. This increases organizational agility, optimize employee mobility and improve a company's ability to respond to its customers.

"Being able to access my work from any Cloud display on campus makes all the difference because with the old PCs, you had to go to that specific classroom. Now I can go to any Cloud display and login and work."

- Nikki Baron, Student, Cleveland Community College, US

Migrate to a VDI for a more productive working environment

Samsung Cloud Displays feature thin-client or zero-client technology embedded into the monitors for effective desktop virtualization and improved productivity. Clutter can be reduced by eliminating unnecessary bulky PCs and wiring.

Samsung Cloud Displays are available in a variety of screen sizes and form factors for maximum flexibility. The displays are packed with ergonomic features like height-adjustable stands (HAS), and tilt and swivel capabilities to accommodate virtually any user's needs. Samsung Cloud Displays generate less heat, noise and dust than traditional PCs. The displays feature multiple ports for connecting with most peripherals, and have optional integrated speakers for an even more streamlined workspace.

Samsung Cloud Displays are designed for easy migration to a VDI. Samsung working alliances with VMware®, Cisco®, EMC® and Microsoft® help to ensure connectivity between the Samsung displays and other manufacturers' software and systems.

"Deploying a Samsung Cloud display was as easy as installing a monitor. Instead of spending 90 minutes for a PC deployment, we were out of there in just 5 minutes."

- Brooks Moore, Manager of Technology Services, Aledo Schools, US

Safeguard company data and infrastructures through streamlined IT strategies

Samsung Cloud Displays help to address the demands of increasingly complex IT environments through data centralization and backup. A security-rich VDI infrastructure also supports compliance with many data protection regulations. Samsung Zero-client cloud displays do not have disk drives or locally stored data, so confidential information has greater protection from intruders and unauthorized users.

"When a student logs on to their session with a Samsung Cloud, they have a clean, virus-free computing session every time – it is amazing!"

- Andrew Zuniga, Technology Instructor, Del Valle Schools, US

Increase efficiency and reduce IT costs with advanced VDI features

Companies need a cost-efficient means of managing today's complex IT environments. A VDI based on Samsung Cloud Display technology provides a streamlined approach to IT management that helps organizations:

- Diagnose and fix issues remotely to optimize employee productivity.
- Support end-client tasks from a central location, such as an IT desk.
- Patch and upgrade software for computing stations simultaneously (on the server).
- Allocate IT staff to more critical priorities.
- Reduce support calls to IT help desks
- Decrease IT visits to remote locations, such as branch offices, factories and retail stores.
- Install new computing stations in minutes
- Provide quicker resolution of service issues in mission-critical areas

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Optimize organizational agility and efficiency with advanced cloud displays

In addition to improving efficiency, companies also need cost-saving ways to reduce power usage. Samsung Cloud Displays cut electricity usage substantially compared to a traditional PC and monitor setup.

Seamless lineups supporting newest VDI technologies for powerful and secure virtual computing solutions

Deploying VDI in organization is not a simple replacement project but a very complicated project bringing various considerations from heterogeneous IT environment. Each company has different IT infrastructure and hardware replacement cycle. Even in one company, each department has their own environment and requirement.

To minimize complexity of VDI solution choice, Samsung offers seamless lineups supporting newest VDI technologies for powerful and secure virtual computing solutions and systems.

All-in-One Cloud Display : Eliminate the need for a separate PC

Samsung offers All-in-One Cloud Display for both Thin-client and Zero-client technology. Customer can choose the right product according to their VDI strategy and requirement.

TC191/TC241 are the perfect Thin-client solution for saving space and avoiding clutter in the workplace. With embedded AMD chipset, SSD disk and Memory, it is optimized PC which knowledge worker can do their job on local and VDI(network) solution with.

NC191/NC221/NC241 equipped embedded Tera2 PCoIP® Zero Clients chipset continue to deliver the high level of security, ease of management and high performance virtual desktop experience on the market. This PCoIP zero client Cloud Display connects easily and effectively with your business's data center.

NC191/NC221/NC241 does not require its own operating system, local CPU or memory storage, All software and hardware components are installed on the central server and automatically extended to each user's Zero-client cloud display. This simple mechanism provides powerful security, minimized maintenance costs and excellent space saving.

Figure 2. Save your work space with All-in-One Cloud Display while enhancing its security and maintenance.

Box type Cloud Series : The easiest and most convenient way to deploy VDI

TX-WN is Thin-client box type cloud series with embedded AMD 1.0GHz CPU, SSD disk and Memory. By simply substituting current desktop with TX-WN and connecting current monitor to it, company can easily migrate its client computing environment to virtual desktop infrastructure. Despite its small form factor and size, it works in excellent performance, perfect security and streamlined manageability support by MagicRMS 2.0.

NX-N2 is a new Zero-client box type cloud series with the advantages of both the box type the Zero-client technology. Cumbersome desktop PC can be easily replaced while keeping the monitor and other peripherals, and the PCoIP zero client does not require even an OS of its own because all software assets including OS and even data are safely stored on the central server.
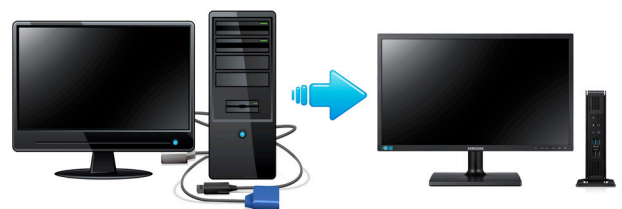

Figure 3. Migrate and optimize your desktop infrastructure to VDI in the easiest way.

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Stand type Cloud Series : Transform current Monitor to All-in-One Cloud Display

Samsung stand type cloud series is a deviation from a conventional cloud client that comes as a stand for any VERA compatible monitor to be mounted on it. The stand type cloud series easily transforms any VESA compatible monitor into an All-in-One like cloud client. The sleek and contemporary design of this base station offers increased desktop space and helps to keep work area tidy. It can hold a monitor weighing up to 6.5kg, with a maximum size of 27 inch with VESA mount 75X75 & 100X100.

NB-NH is Zero-client device with embedded Tera2 PCoIP® Zero Clients chipset continue to deliver high level of security, ease of management and high performance virtual desktop experience on the market. This PCoIP zero client Cloud Display connects easily and effectively with your business's data center.

Figure 4. Transform your current monitor to All-in-One Cloud Display with stand type cloud series

Manage more than 1,000 displays with the Samsung MagicRMS 2.0 solution

The Samsung MagicRMS 2.0 remote management software solution is built into the thin client technology of the Samsung Cloud TX/TB/TC Series of displays . The software assists information technology (IT) professionals with the maintenance, monitoring and overall management of the displays. IT personnel can manage more than 1,000 Samsung Cloud TX/TB/TC Series displays from a remote location with the MagicRMS 2.0 software.

MagicRMS 2.0 software consists of three components: agent, server and console.

- **Agent software.** The agent software component is in-stalled on Samsung Cloud displays and devices and sends and receives information to the server.

- **Server software.** The server software component is in-stalled on the server computer and connects to the displays.
- **Console software.** The console software monitors, edits, reports, and gathers information on the Samsung Cloud displays.

All three components of the MagicRMS 2.0 help with the efficient management of thin client networks.

Features and benefits

Features	Benefits
All-in-one form factor	Decreases desktop clutter
More secure, centralized data	Helps companies comply with security regulations Assists businesses in retaining intellectual property
Improved connectivity	Provides flexible access to mobile employees
Reduced maintenance	Decreases the need for IT support Increases uptime
Energy efficient design	Lowers energy costs

Optimize organizational agility and efficiency with advanced cloud displays

Today's companies need better management of complex IT environments, improved employee mobility and increased security. Samsung Cloud Displays provide an efficient VDI that enhances employee productivity with a streamlined, ergonomic work environment. Centralized IT management helps to keep systems and data more secure while reducing IT support and costs.

Samsung Cloud Displays provide a high-quality IT environment that is current with today's devices, trends, connectivity and infrastructures.

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All -in-One
Thin Client

			TC191W	TC241W
Client	Processor/Graphics/Audio/Networking		AMD Ontario™ 1.0 GHz Dual/AMD Radeon™ HD6290/ Realtek ALC262/Marvell 88E8055 Gigabit LAN	
	Memory (socket)/Storage/ Ethernet/Fan or fanless		DDR3 2 GB /SSD 16GB/Gigabit Ethernet/Fanless	
Software	OS		Microsoft® Windows® Embedded Standard 7 (WES 7, 32 bit)	
	Client S/W		Microsoft RDP, RemoteFX / Citrix Online Plug-in / VMWare View	
	Remote management		MagicRMS 2.0	
Panel	Size		482.6 mm (19 in.)	599.44 mm (23.6 in.)
	Viewable size		482.6 mm (19 in.)	599.44 mm (23.6 in.)
	Panel type		a-Si TFT active matrix	
	Aspect ratio		5:4	16:9
	Pixel pitch (H x V)		0.29 mm x 0.29 mm (0.01 in. x 0.01 in.)	0.27 x 0.27 mm (0.01 in. x 0.01 in.)
	Brightness (typ)		250 cd per sq. m	300 cd per sq. m
	Contrast ratio (typ)		1,000:1	
	Viewing angle (H x V)		170/160 deg (CR ≥ 10)	170/160 deg (CR ≥ 10)/178/ 170 deg (CR ≥ 5)
	Response time		5 ms	5 ms (white to white)
Frequency	Frequency	Horizontal / Vertical	31 - 80 kHz / 56 - 75 Hz	
	Maximum resolution (H x V) (dual screen)		1,280 x 1,024 (1,920 x 1,200)	1,920 x 1,080 (1,920 x 1,200)
	Bandwidth		135 MHz	148.5 MHz
	Colors supported		16.7 million	
Signal	Sync type		(1) Separate H/V; (2) Sync on green	
	Input and output		D-sub in, DVI-I out, serial port; USB (2.0 x 4 ea) LAN (RJ45, Giga); Headphone-out port, audio in, MIC in	
Power	Power-on	Maximum / Typical	43 W / 27 W	49 W / 32 W
	Stand-by		Less than 1.3 W	
Cabinet color	Front and back		Black	
Accessory (supplied)	Included in package		(1) User manual; (2) Power cord; (3) Quick Setup Guide; (4) Warranty card	
Accessory (optional)	Speaker		1 W x 2 (stereo)	
	Wall mount		VESA 100 x 100	
Dimension	Set, with stand (W x H x D)		407.0 mm x 352.9 mm x 210.0 mm (16.02 in. x 13.89 in. x 8.27 in.)	554.6 mm x 380.3 mm x 224.0 mm (21.83 in. x 14.97 in. x 8.82 in.)
	Set, without stand (W x H x D)		407.0 mm x 336.0 mm x 60.6 mm (12.09 in. x 13.23 in. x 2.39 in.)	554.6 mm x 330.5 mm x 61.2 mm (21.83 in. x 14.97 in. x 2.41 in.)
	Packaged (W x H x D)		514.0 mm x 407.0 mm x 195.0 mm (20.24 in. x 16.02 in. x 7.68 in.)	626.0 mm x 400.0 mm x 195.0 mm (24.65 in. x 15.75 in. x 7.68 in.)
Weight	Net/Gross		5.0 kg (11.02 lb)/6.1 kg (13.45 lb)	6.1 kg (13.45 lb)/7.6 kg (16.76 lb)
Stand	Type	Swivel	-45° - 45°	
		Pivot	0° - 90°	
		Tilt	-2° - 25°	
		Height adjustable	100 mm (3.94 in.)	130 mm (5.12 in.)

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All -in-One
Zero Client

		NC191	NC241	NC221
Client	Processor/Graphic RAM/Audio	Teradici Tera2321/DDR3 512 MB/ALC262		
	VMware certification/Ethernet/Fan or fanless	VMware-ready/Gigabit Ethernet/Fanless		
Panel	Size	19"	23.6"	21.5"
	Viewable size	19"	23.6"	21.5"
	Panel type	a-Si TFT active matrix		
	Aspect ratio	5:4	16:9	16:9
	Pixel pitch (H x V)	0.29 mm x 0.29 mm (0.01 in. x 0.01 in.)	0.27 x 0.27 mm (0.01 in. x 0.01 in.)	0.294 x 0.294 mm (0.01 in. x 0.01 in.)
	Brightness (typ)	250 cd per sq. m	300 cd per sq. m	250 cd per sq. m
	Contrast ratio (typ)	1,000:1		
	Viewing angle (H x V)	170/160 deg (CR ≥ 10)	170/160 deg (CR ≥10) /178/170 deg (CR ≥ 5)	170/160 deg (CR ≥ 10)
	Response time	5 ms	5 ms (white to white)	5 ms
Frequency	Frequency — Horizontal	31 - 80 kHz		
	Frequency — Vertical	56 - 75 Hz		
	Maximum resolution (H x V) (dual screen)	1,280 x 1,024 (1,920 x 1,200)	1,920 x 1,080 (1,920 x 1,200)	
	Bandwidth	135 MHz	148.5 MHz	135 MHz
	Colors supported	16.7 million		
Signal	Sync type	(1) Separate H/V; (2) Sync on green		
	Input and output	D-sub in, DVI-I out, serial port; USB (2.0 x 4 ea) LAN (RJ45, Giga); Headphone-out port, audio in, MIC in		
Power	Power-on — Maximum	40 W	46 W	46 W
	Power-on — Typical	17 W	23 W	31 W
	Stand-by	Less than 1.1 W		
Cabinet color	Front and back	Black/black		
Accessory (supplied)	Included in package	(1) User manual; (2) Power cord; (3) Quick Setup Guide; (4) Warranty card		
Accessory (optional)	Speaker	1 W x 2		
	Wall mount	VESA 100 x 100		
Dimension	Set, with stand (W x H x D)	407.0 x 352.9 x 210.0 mm (16.02 in. 13.89 in. x 8.27 in.)	554.6 x 380.3 x 224.0 mm (21.83 in. x 14.97 in. x 8.82 in.)	504.3 x 435.4 x 210.0 mm (19.85 in. x 17.14 in. x 8.27 in.)
	Set, without stand (W x H x D)	407.0 x 336.0 x 60.6 mm (16.02 in. x 13.23 in. x 2.39 in.)	554.6 x 330.5 x 61.2 mm (21.83 in. x 13.01 in. x 2.41 in.)	504.3 x 301.9 x 61.2 mm (19.85 in. x 11.89 in. x 2.41 in.)
	Packaged (W x H x D)	514.0 x 407.0 x 195.0 mm (20.24 in. x 16.02 in. x 7.68 in.)	626.0 x 400.0 x 195.0 mm (24.65 in. x 15.75 in. x 7.68 in.)	554.0 x 354.0 x 169.0 mm (19.85 in. x 13.94 in. x 6.65 in.)
Weight	Net/Gross	5.0 kg / 6.1 kg (11.02 lb / 13.45 lb)	6.1 kg /7.6 kg (13.45 lb / 16.76 lb)	4.9 kg /6.0 kg (10.8 lb / 13.23 lb)
Stand	Type — Swivel	-45° - 45°		
	Type — Pivot	0° - 90°		
	Type — Tilt	-2° - 25°		
	Type — Height adjustable	100 mm (3.94 in.)	130 mm (5.12 in.)	100 mm (3.94 in.)

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Stand and Box
Zero Client

			NB-NH	NX-N2
Client	Processor		Teradici Tera2321	
	Graphic RAM		DDR3 512 MB	
	Audio		Realtek ALC886	Realtek ALC262
	VMware		VMware-ready	
	Ethernet		Gigabit Ethernet	
	Fan or fanless		Fanless	
Frequency	Maximum resolution (H x V) (dual screen)		1,920 x 1,200	2,560 x 1,600
Signal	Input and output		LAN (RJ45 Gigabit) USB (2.0 x 4 ea); Headphone-out port, audio out, MIC in; RS-232C (9-pin D-sub); VGA out (15-pin D-sub/for dual); DVI-D out (connection to integrated display)	LAN (RJ45 Gigabit) USB (2.0 x 6 ea); Headphone-out port,MIC in; Display Port Out; DVI-I out
Power	Power-on	Maximum	19.4 W	Less than 30W
		Typical	7.3 W	Less than 30W
	Stand-by		Less than 1.0 W	Less than 1.1W (Stand By) / Less than 0.3W (Power off)
Accessories (supplied)	Included in package		(1) User manual; (2) Power adapter; (3) Quick Setup Guide; (4) Warranty card;	(1) User manual; (2) Power adapter; (3) Quick Setup Guide; (4) Warranty card; (5) Cradle; (6) Screw
Optional Feature	Speaker		1 W x 2	2W x 1
	Wall mount bracket		VESA 75 x 75 / 100 x 100	VESA 100 x 100 by Cradle
Dimension	Packaged (W x H x D)		455 mm x 380 mm x 140 mm (17.91 in. x 14.96 in. x 5.51 in.)	191mm x 75 mm x 225 mm (7.52 in. x 2.95 in. x 8.85 in.)
	Set, with stand (W x H x D)		-	Vertical: 91.8 mm x 217.8 mm x 166.3 mm (3.86 in. x 8.57 in. x 6.55 in.) Horizontal: 210 mm x 54.8 mm x 122 mm (8.27 in. x 2.16 in. x 4.8 in.)
	Set, without stand (W x H x D)		-	210 mm x 47.5 mm x 122 mm (8.27 in. x 1.87 in. x 4.8 in.)
	Stand (W x H x D)		244 mm x 340 mm x 227 mm (9.60 in. x 13.38 in. x 8.93 in.)	115 mm x 12.6 mm x 115 mm (4.53 in. x 0.5 in. x 4.53 in.)
Weight	Net/gross		2.3 kg (5.0 lb) / 6.1 kg (13.4 lb)	425g (0.94 lb) / 1.3kg (2.87 lb)
Stand	Type	Pivot	0° - 90°	-
		Tilt	-2° - 25°	-
		Height adjustable	120 mm (3.94 in.)	-

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Stand and Box
Thin Client

		TB-WH	TX-WN
Client	Process or	AMD Ontario 1.6GHz Dual	AMD Ontario 1.0 GHz Dual
	Graphics	AMD Radeon HD6310	AMD Radeon™ HD6290
	Audio	Realtek ALC269	Realtek™ ALC262
	Networking	Marvell 88E8055 Gigabit LAN	Marvell® 88E8055 Gigabit LAN
	Memory (Socket)	DDR3 2GB	DDR3 2 GB
	Storage	SSD 16 GB	SSD 16 GB
	Ethernet	Gigabit Ethernet	Gigabit Ethernet
	Wi-Fi	N/A	802.11 a/b/g/n
	Fan/fanless	Fan	Fanless
Software	OS	Windows Embedded Standard 7 (WES 7 32-bit)	
	Client S/W	Microsoft RDP, RemoteFX / Citrix Online Plug-in / VMWare View	
	Remote management	MagicRMS 2.0	
Frequency	Maximum resolution supported (H x V) (Dual screen)	1,920 x 1,200	
Signal	Input / Output	LAN, RJ45 Gigabit; USB, 2.0 X 6EA / 2.0; Headphone-out; Audio-out; MIC in; VGA OUT (15pin D-SUB / for Dual); DVI-D OUT (Single for connection to integrated display)	LAN, RJ45 Gigabit; USB, 3.0 X 2EA / 2.0 X 4EA; Headphone-out port; Audio-out; MIC in; RS-232C serial; DVI-I OUT; DVI-D OUT
Power	Power-on	Power-on, 40 W maximum, 25 W typical; Stand-by, less than 1.8 W	Power-on, 36 W maximum, 12 W typical; Stand-by, less than 2 W
Cabinet color	Cabinet color, front and back	Black	Black
Accessory (Supplied)	Accessories included in package	User Manual, Power Cord, Quick Setup Guide, Warranty Card, Power Adapter	User Manual, Power Cord, Quick Setup Guide, Warranty Card, Cradle, Power Adapter
Optional Feature	Speaker	1W x 2 (Stereo)	1W x 2 (Stereo)
	Wall mount	VESA 75 x 75 / 100 x 100	VESA 100 x 100 (accessory/option)
Dimension	Set, with stand (W x H x D)	224 x 340 x 227 (8.82 in. x 13.39 in. x 8.94 in.)	Vertical: 91.8 x 217.8 x 166.3 (3.61 in. x 8.57 in. x 6.55 in.) Horizontal: 210 x 54.8 x 122 (8.27 in. x 2.16 in. x 4.8 in.)
	Set, without stand (W x H x D)	-	210 mm x 47.5 mm x 122 mm (4.53 in. x 0.5 in. x 4.53 in.)
	Dimensions, packaged (W x H x D)	445 mm x 308 mm x 140 mm (17.52 in. 12.13 in. x 5.51 in.)	270 mm x 258 mm x 120 mm (10.63 in. x 10.16 in. x 4.72 in.)
	Stand (W x H x D)	224 mm x 40 mm x 227 mm (8.82 in. x 1.57 in. x 8.94 in.)	-
	Cradle (W x H x D)	-	91.8 mm x 166.3 mm x 13 mm (3.61 in. x 6.55 in. x 0.51 in.)
Weight	Net / Gross	Net 2.3 kg; Gross 3.5 kg (5.07 lb / 7.72 lb)	Net 0.8 kg; Gross 1.8 kg (1.76 lb / 3.97 lb)

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About Samsung Electronics Co., Ltd.

Samsung Electronics Co., Ltd. is a global leader in technology, opening new possibilities for people everywhere. Through relentless innovation and discovery, we are transforming the worlds of TVs, smartphones, tablets, PCs, cameras, home appliances, printers, LTE systems, medical devices, semiconductors and LED solutions. We employ 286,000 people across 80 countries with annual sales of US$216.7 billion. To discover more, please visit www.samsung.com.

For more information

For more information about Samsung Cloud Displays, visit www.samsung.com or www.samsung.com/displaysolutions.

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1. IDC report

2. Samsung Cloud Display Benefits Estimator

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